

ABSTRACT OF THE DISCLOSURE

The invention provide a vertical MOS transistor which is capable of realizing high reliability, low cost and high yield through the transistor is miniature and has a high driving ability, and a method of manufacturing the same. Up to the middle of a trench is filled with a polycrystalline silicon gate electrode, and an intermediate insulating film is deposited so as to be filled in a remaining portion of the trench to flatten a main surface of a semiconductor substrate. The intermediate insulating film is etched back to expose the main surface of the semiconductor substrate over which a metal material is in turn deposited. Thus, the vertical MOS transistor can be formed without through a contact hole formation process. Since a layout margin for alignment deviation or the like is unnecessary, area saving is possible. Also, since the metal material is perfectly flattened, high reliability is obtained.